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From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference KKSS:205407577		Date of mailing (day/month/year) 19 NOV 2004
International application No. PCT/AU2004/001367	International filing date (day/month/year) 7 October 2004	Priority date (day/month/year) 7 October 2003
International Patent Classification (IPC) or both national classification and IPC Int. Cl. ? C12N 5/00, B01D 57/02		
Applicant UNIVERSITY OF NEWCASTLE et al		

1. This opinion contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the opinion
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer JANE MCHENRY Telephone No. (02) 6283 2091
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/AU2004/001367

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - in written format
 - in computer readable form
 - c. time of filing/furnishing
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-26	YES
	Claims	NO
Inventive step (IS)	Claims 1-26	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-26	YES
	Claims	NO

2. Citations and explanations:

The invention resides in a method of using an electrical potential to drive sperm cell isolation/enrichment/separation. The electrical potential is used to separate sperm cell sub-populations across a suitable ion-permeable electrophoresis membrane.

The following documents (D) from the ISR are referred to in this communication:

D1: WO 2002/024314 (The Texas A & M University System et al.) 28 March 2002.

D2: WO 2002/093168 (Gradipore Ltd) 21 November 2002.

D3: DE 10149875 (Alpha Technology Gesellschaft für Angewandte Biotechnologie mbH i.Ins.) 3 July 2003.

D1 describes the membrane-based electrophoresis apparatus used in the method of the present application. D1 suggests that the apparatus disclosed is suitable for electrophoresis of biomolecules including "protein, peptides, glycoproteins, nucleic acid molecules, recombinant molecules, metabolites, neutraceuticals, pharmaceuticals, microorganisms including viruses, bacteria, fungi and yeasts, and prions" (P.4 lines 28-30). Nowhere in this citation is it suggested that sperm sub-populations have different charge characteristics, or that this property can be exploited to obtain sperm sub-populations using membrane-based electrophoresis.

D2 describes a membrane-based electrophoresis method to detect the presence of prions in biological samples, including sperm.

D3 describes a two chamber electrophoresis apparatus used to separate/extract biopolymers (eg DNA, RNA, PNA, or proteins). The apparatus can be used to extract analytes from medical samples including sperm.

Inasmuch as none of the citations disclose membrane-based electrophoresis as a method to separate sperm cell sub-populations the invention appears to be novel and inventive.